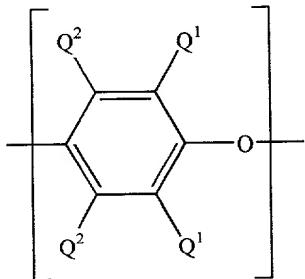


Claims

- [c1] 1.A thermoplastic composition, comprising:
about 15 to about 35 weight percent of a poly(arylene ether);
about 15 to about 46 weight percent of a homopolymer of an alkenyl aromatic monomer;
about 10 to about 35 weight percent of a polyolefin;
about 1 to about 15 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent; and
about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene;
wherein the composition is substantially free of rubber-modified poly(alkenyl aromatic) resin; and wherein all weight percents are based on the total weight of the composition.

- [c2] 2.The thermoplastic composition of Claim 1, wherein the poly(arylene ether) comprises a plurality of structural units of the formula



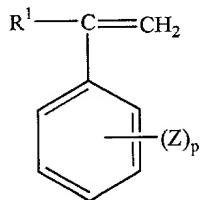
wherein for each structural unit, each Q¹ is independently halogen, primary or secondary C₁–C₈ alkyl, phenyl, C₁–C₈ haloalkyl, C₁–C₈ aminoalkyl, C₁–C₈ hydrocarboxy, or C₂–C₈ halohydrocarboxy wherein at least two carbon atoms

separate the halogen and oxygen atoms; and each Q² is independently hydrogen, halogen, primary or secondary C₁–C₈ alkyl, phenyl, C₁–C₈ haloalkyl, C₁–C₈ aminoalkyl, C₁–C₈ hydrocarboxy, or C₂–C₈ halohydrocarboxy wherein at least two carbon atoms separate the halogen and oxygen atoms.

- [c3] 3.The thermoplastic composition of Claim 2, wherein each Q¹ is independently C₁–C₈ alkyl or phenyl, and each Q² is independently hydrogen or methyl.

- [c4] 4.The thermoplastic composition of Claim 1, wherein the poly(arylene ether) comprises a copolymer of 2,6-dimethylphenol and 2,3,6-trimethylphenol.

[c5] 5.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer is a polymerization product of an alkenyl aromatic monomer of the formula



wherein R¹ is hydrogen, C₁-C₈ alkyl, or halogen; Z is vinyl, halogen, or C₁-C₈ alkyl; and p is 0 to 5.

[c6] 6.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer comprises homopolystyrene.

[c7] 7.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer comprises atactic homopolystyrene.

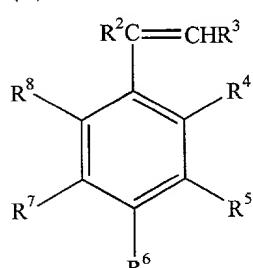
[c8] 8.The thermoplastic composition of Claim 1, wherein the polyolefin comprises a homopolymer or copolymer having at least about 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof.

[c9] 9.The thermoplastic composition of Claim 1, wherein the polyolefin is a propylene polymer; and wherein the propylene polymer comprises a homopolymer of polypropylene, or a random, graft, or block copolymer of propylene and at least one olefin selected from ethylene and C₄-C₁₀ alpha-olefins, with the proviso that the copolymer comprises at least about 80 weight percent of repeating units derived from propylene.

[c10] 10.The thermoplastic composition of Claim 1, wherein the polyolefin comprises a homopolypropylene.

[c11] 11.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer comprises:

(A) at least one block derived from an alkenyl aromatic compound having the formula



wherein R² and R³ each represent a hydrogen atom, a C₁–C₈ alkyl group, or a C₂–C₈ alkenyl group; R⁴ and R⁸ each represent a hydrogen atom, a C₁–C₈ alkyl group, a chlorine atom, or a bromine atom; and R⁵–R⁷ each independently represent a hydrogen atom, a C₁–C₈ alkyl group, or a C₂–C₈ alkenyl group, or R⁴ and R⁵ are taken together with the central aromatic ring to form a naphthyl group, or R⁵ and R⁶ are taken together with the central aromatic ring to form a naphthyl group including; and

(B) at least one block derived from a conjugated diene, in which the aliphatic unsaturated group content in the block (B) is reduced by hydrogenation.

- [c12] 12.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer comprises a styrene–(ethylene–butylene)–styrene triblock copolymer.
- [c13] 13.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer has a styrene content of about 50 to about 85 weight percent.
- [c14] 14.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer has a styrene content of about 55 to about 70 weight percent.
- [c15] 15.The thermoplastic composition of Claim 1, wherein the unhydrogenated block copolymer comprises a styrene–butadiene diblock copolymer or a styrene–butadiene–styrene triblock copolymer.
- [c16] 16.The thermoplastic composition of Claim 1, further comprising a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of about 10 to less than 40 weight percent.
- [c17] 17.The thermoplastic composition of Claim 1, further comprising a polypropylene–polystyrene graft copolymer having a propylene polymer backbone and one or more styrene polymer grafts.
- [c18] 18.The thermoplastic composition of Claim 17, wherein the polypropylene–polystyrene graft copolymer comprises about 10 to about 90 weight percent propylene polymer backbone and about 90 to about 10 weight percent styrene polymer grafts.
- [c19] 19.The composition of Claim 1, further comprising about 2 to about 20 weight

percent of an ethylene/alpha-olefin elastomeric copolymer.

- [c20] 20.The thermoplastic composition of Claim 19, wherein the ethylene/alpha-olefin elastomeric copolymer comprises a copolymer of ethylene and at least one C₃ -C₁₀ alpha-olefin.
- [c21] 21.The thermoplastic composition of Claim 19, wherein the ethylene/alpha-olefin elastomeric copolymer comprises an ethylene-butylene rubber, an ethylene-propylene rubber, or a mixture thereof.
- [c22] 22.The composition of Claim 1, wherein the composition is substantially free of reinforcing fillers.
- [c23] 23.The composition of Claim 1, wherein the composition after molding has a flexural modulus measured at 23 ° C according to ASTM D256 of at least about 230,000 pounds per square inch.
- [c24] 24.The composition of Claim 1, wherein the composition after molding has an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 1 foot-pound per inch.
- [c25] 25.The composition of Claim 1, wherein the composition after molding has an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 2 foot-pounds per inch.
- [c26] 26.The composition of Claim 1, wherein the composition after molding has a heat distortion temperature measured at 66 psi according to ASTM D648 of at least about 240 ° F.
- [c27] 27.The composition of Claim 1, wherein the composition after molding has a flexural modulus at 23 ° C of at least about 230,000 pounds per square inch and an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 4 foot-pounds per inch.
- [c28] 28.The composition of Claim 1, wherein the composition after molding has a flexural modulus at 23 ° C of at least about 300,000 pounds per square inch and an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 1.5 foot-pounds per inch.

[c29] 29.A thermoplastic composition, comprising:
about 15 to about 35 weight percent of a poly(arylene ether);
about 15 to about 46 weight percent of a homopolystyrene;
about 10 to about 35 weight percent of a polyolefin;
about 1 to about 15 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent;
about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene; and
about 2 to about 20 weight percent of an ethylene/alpha-olefin elastomeric copolymer;
wherein the composition is substantially free of rubber-modified poly(alkenyl aromatic) resin; and wherein all weight percents are based on the total weight of the composition.

[c30] 30.A thermoplastic composition, comprising:
about 15 to about 32 weight percent of a poly(arylene ether) that is the polymerization product of 2,6-dimethylphenol, 2,3,6-trimethylphenol, or a combination thereof;
about 20 to about 46 weight percent of an atactic homopolystyrene;
about 12 to about 30 weight percent of a homopolypropylene; and
about 2 to about 13 weight percent of a styrene-(ethylene-butylene)-styrene triblock copolymer having a styrene content of about 50 weight percent to about 75 weight percent;
about 2 to about 13 weight percent of a styrene-butadiene-styrene triblock copolymer;
wherein the composition is substantially free of rubber-modified poly(alkenyl aromatic) resin; and wherein all weight percents are based on the total weight of the composition.

[c31] 31.A thermoplastic composition, comprising the reaction product of:
about 15 to about 35 weight percent of a poly(arylene ether);
about 15 to about 46 weight percent of a homopolymer of an alkenyl aromatic monomer;
about 10 to about 35 weight percent of a polyolefin;
about 1 to about 15 weight percent of a hydrogenated block copolymer of alkenyl

aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent; and
about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene;
wherein the composition is substantially free of rubber-modified poly(alkenyl aromatic) resin; and wherein all weight percents are based on the total weight of the composition.

- [c32] 32.An article comprising the composition of Claim 31.
- [c33] 33.An automotive component comprising the composition of Claim 31.
- [c34] 34.An automotive underhood component comprising the composition of Claim 31.
- [c35] 35.A food tray comprising the composition of Claim 31.
- [c36] 36.A sheet comprising the composition of Claim 31.